



## Contents at a Glance

---

- Module 1**      **Foundations for Practice in Nephrology Nursing**
- 1 Professional Issues in Nephrology Nursing
  - 2 Research and Evidence-Based Practice in Nephrology Nursing
  - 3 Health Policy, Politics, and Influence in Nephrology Nursing
  - 4 Essentials of Disaster and Emergency Preparedness in Nephrology Nursing
- Module 2**      **Physiologic and Psychosocial Basis for Nephrology Nursing Practice**
- 1 The Kidney in Health and Disease
  - 2 Chronic Kidney Disease
  - 3 Individualizing the Care for Those with Kidney Disease
  - 4 Foundations in Nutrition and Clinical Applications in Nephrology Nursing
  - 5 Foundations in Pharmacology and Clinical Applications in Nephrology Nursing
  - 6 Foundations in Infection Prevention, Control, and Clinical Applications in Nephrology Nursing
- Module 3**      **Treatment Options for Patients with Chronic Kidney Failure**
- 1 Transplantation
  - 2 Hemodialysis
  - 3 Vascular Access for Hemodialysis
  - 4 Peritoneal Dialysis
  - 5 Home Dialysis
- Module 4**      **Acute Kidney Injury**
- 1 Program Management in the Acute Care Setting
  - 2 Acute Kidney Injury
  - 3 Hemodialysis in the Acute Care Setting
  - 4 Water Treatment in the Acute Care Setting
  - 5 Peritoneal Dialysis in the Acute Care Setting
  - 6 The Patient with a Ventricular Assist Device
  - 7 Continuous Renal Replacement Therapies
  - 8 Therapeutic Apheresis
- Module 5**      **Kidney Disease in Patient Populations Across the Life Span**
- 1 Care of the Neonate to Adolescent with Kidney Disease
  - 2 Care of the Older Adult with Kidney Disease
- Module 6**      **The APRN's Approaches to Care in Nephrology**
- 1 Professional Issues for the APRN in Nephrology
  - 2 Overview of CKD for the APRN
  - 3 Overview of Treatment Options for CKD for the APRN
  - 4 Overview of Acute Care for the APRN
  - 5 Overview of Pediatric Nephrology for the APRN



# Expanded Contents

The table of contents contains chapters and sections with editors and authors for all six modules. The contents section of this specific module is highlighted in a blue background.

Foreword .....	iii
What’s New in the Sixth Edition? .....	iv
Preface .....	v
Chapter Editors and Authors .....	vi
Reviewers .....	x
Contents at a Glance .....	xii
Expanded Contents .....	xiii
Examples of APA-formatted References .....	xx

## Module 1 Foundations for Practice in Nephrology Nursing

<b>Chapter 1 Professional Issues in Nephrology Nursing.....</b>	<b>1</b>
<i>Editor: Glenda M. Payne</i>	
<b>Section A Professional Issues .....</b>	<b>3</b>
<i>Glenda M. Payne</i>	
<b>Section B Ethics .....</b>	<b>7</b>
<i>Susan A. Pfetscher</i>	
<b>Section C Leadership and Management .....</b>	<b>17</b>
<i>Glenda M. Payne, Nancy B. Pierce, Lillian A. Pryor</i>	
<b>Section D Quality Assurance and Performance Improvement .....</b>	<b>42</b>
<i>Bonnie Greenspan</i>	
<b>Section E Culture of Safety .....</b>	<b>48</b>
<i>Bonnie Greenspan</i>	
<b>Section F Role of Regulatory Agencies .....</b>	<b>54</b>
<i>Glenda M. Payne</i>	
<b>Chapter 2 Research and Evidence-Based Practice in Nephrology Nursing.....</b>	<b>63</b>
<i>Editor: Tamara Kear</i>	
<b>Section A Overview of Research and Evidence-Based Practice .....</b>	<b>65</b>
<i>Tamara Kear</i>	
<b>Section B Standards for Care .....</b>	<b>69</b>
<i>Lisa Micklos</i>	
<b>Section C The National Kidney Foundation Disease Outcomes Quality Initiative and The Kidney Disease Improving Global Outcomes .....</b>	<b>72</b>
<i>M. Sue McManus</i>	
<b>Section D The Dialysis Outcomes and Practice Patterns Study .....</b>	<b>75</b>
<i>Caroline S. Counts</i>	

Section E	United States Renal Data System .....	76
	<i>Gail S. Wick</i>	
Section F	Consolidated Renal Operations in a Web-Enabled Network .....	78
	<i>Alicia Horkan</i>	
Section G	United Network for Organ Sharing .....	79
	<i>Linda S. Wright</i>	
<b>Chapter 3</b>	<b>Health Policy, Politics, and Influence in Nephrology Nursing.....</b>	<b>87</b>
	<i>Editor and Author: Donna Bednarski</i>	
Section A	Advocacy .....	89
Section B	Advocacy History of ANNA .....	90
Section C	Public Policy and the Political Process .....	93
	Part 1. “Civics 101” .....	93
	Part 2. State Government .....	100
	Part 3. How to Be Politically Active .....	101
	Part 4. Learning Opportunities for Nurses in Health Policy .....	107
<b>Chapter 4</b>	<b>Essentials of Disaster and Emergency Preparedness in Nephrology Nursing .....</b>	<b>109</b>
	<i>Editor and Author: Norma Gomez</i>	
Section A	General Disaster Plan .....	111
Section B	Natural Disasters .....	117
Section C	Man-Made Disasters .....	129
Section D	Disaster Drills .....	132
	<b>Self-Assessment Questions .....</b>	<b>138</b>
	<b>Index – Module 1 .....</b>	<b>141</b>

## Module 2 Physiologic and Psychosocial Basis for Nephrology Nursing Practice

<b>Chapter 1</b>	<b>The Kidney in Health and Disease .....</b>	<b>1</b>
	<i>Editor: Carol Motes Headley</i>	
Section A	Genetics and Genomics .....	4
	<i>Karen Greco, Suzanne M. Mahon</i>	
Section B	Anatomy and Physiology .....	25
	<i>Carol Motes Headley</i>	
Section C	Pathophysiology .....	52
	<i>Paula Dutka, Charlotte Szromba</i>	
Section D	Assessment of Kidney Structure and Function.....	91
	<i>Sheila J. Doss-McQuitty</i>	
Section E	Chronic Kidney Disease .....	117
	<i>Joni Walton</i>	
<b>Chapter 2</b>	<b>Chronic Kidney Disease .....</b>	<b>153</b>
	<i>Editor: Debra J. Hain</i>	
	<i>Authors: Debra J. Hain, Mary S. Haras</i>	
Section A	Introduction to Chronic Kidney Disease .....	155
Section B	CKD Disease Management .....	159
Section C	Kidney Disease Education Based on Stage of CKD .....	183

**Chapter 3 Individualizing the Care for Those with Kidney Disease . . . . . 189**

*Editor: Donna Bednarski*

Section A Psychosocial Impact and Spirituality . . . . . 192  
*Lisa Hall*

Section B Cultural Diversity . . . . . 200  
*Molly Cahill, Cheryl L. Groenhoff*

Section C Patient and Family Education . . . . . 211  
*Molly Cahill, Cheryl L. Groenhoff*

Section D Patient and Family Engagement . . . . . 219  
*Sharon Longton*

Section E Caring for Veterans . . . . . 223  
*Loretta Jackson Brown*

Section F The Financial Impact . . . . . 225  
*Lois Kelley, Donna Bednarski*

Section G Physical Rehabilitation . . . . . 233  
*Daniel Diroll*

Section H Advance Care Planning and Palliative/End-of-Life Care . . . . . 242  
*Deb Castner*

**Chapter 4 Foundations in Nutrition and Clinical Applications in Nephrology Nursing . . . . . 255**

*Editor: Deborah Brommage*

Section A Nutrition Screening and Assessment . . . . . 257  
*Jessie M. Pavlinac*

Section B Chronic Kidney Disease . . . . . 261  
*Mary Kay Hensley, Maureen P. McCarthy*

Section C Special Considerations in Kidney Disease . . . . . 268  
*Deborah Brommage, Ann Beemer Cotton, Janelle Gonyea, Pamela S. Kent, Jean Stover*

Section D Nutrition Intervention . . . . . 279  
*Louise Clement, Pamela S. Kent*

**Chapter 5 Foundations in Pharmacology and Clinical Applications in Nephrology Nursing . . . 291**

*Editor: Elizabeth Wilpula*

*Authors: Elizabeth Wilpula, Francine D. Salinitri*

Section A Interactions between Drugs and the Body . . . . . 294

Section B Effects of Chronic Kidney Disease on Drug Activity . . . . . 299

Section C Drugs Frequently Used to Treat Patients with Chronic Kidney Disease . . . . . 300

Section D Assessment of Kidney Function and Medication Dosing in Patients with CKD . . . . 320

Section E The Clinical Significance for Nursing . . . . . 326

**Chapter 6 Foundations in Infection Prevention, Control, and Clinical Applications in Nephrology Nursing . . . . . 331**

*Editor: Eileen J. Peacock*

*Authors: Eileen Peacock, Caroline S. Counts, Silvia German, Kerri Holloway, Liz Howard, Karen Wiseman*

Section A Overview . . . . . 333

Section B Bacteremia . . . . . 334

Section C Vascular Access Infections and Catheter-Related Infections . . . . . 337

Section D Antibiotic and Antimicrobial Resistance . . . . . 340

Section E Hepatitis B . . . . . 346

Section F Hepatitis C . . . . . 354

Section G Hepatitis D . . . . . 358

Section H Human Immunodeficiency Virus (HIV) . . . . . 359

Section I	The Ebola Virus . . . . .	360
Section J	Occupational Exposure to BBP (HBV, HCV, HIV) . . . . .	365
Section K	Safe Injection Practices and Medication Safety . . . . .	367
Section L	Aerosol Transmissible Diseases . . . . .	369
Section M	Tuberculosis . . . . .	370
Section N	Immunizations . . . . .	379
Section O	Infections Related to Water, Reuse, and/or Machine Contamination . . . . .	385
Section P	Hemodialysis Precautions . . . . .	386
Section Q	Recommendations, Regulations, Guidelines, and Quality Improvement . . . . .	388

**Self-Assessment Questions . . . . . 397**

**Index – Module 2 . . . . . 401**

## **Module 3 Treatment Options for Patients with Chronic Kidney Failure**

### **Chapter 1 Transplantation . . . . . 1**

*Editors: Jean Colaneri, Clara Neyhart*

Section A	Kidney Transplantation . . . . .	3
	<i>Jean Colaneri, Clara Neyhart</i>	
	Part 1. Introduction . . . . .	3
	Part 2. Organ Donation and Preservation . . . . .	4
	Part 3. Organ Transplantation . . . . .	8
	Part 4. Immunobiology of Organ Transplant Rejection . . . . .	22
	Part 5. Immunosuppressive Therapy . . . . .	25
Section B	Simultaneous Pancreas–Kidney Transplantation . . . . .	31
	<i>Jean Colaneri</i>	
Section C	Chronic Kidney Disease in Transplant Recipients . . . . .	43
	<i>Clara Neyhart</i>	
	Part 1. Chronic Kidney Disease in Liver Disease and Liver Transplantation . . . . .	43
	Part 2. Chronic Kidney Disease in Heart Disease and Heart Transplantation . . . . .	47
	Part 3. Chronic Kidney Disease in Lung Transplantation . . . . .	51
Section D	Care of the Kidney Transplant Recipient Who is HIV Positive . . . . .	52
	<i>Laurie Carlson</i>	
Section E	Hepatitis C Infection and Kidney Transplantation . . . . .	59
	<i>Laurie Carlson</i>	

### **Chapter 2 Hemodialysis . . . . . 69**

*Editor: Karen C. Robbins*

Section A	Principles of Hemodialysis . . . . .	74
	<i>Deb Castner</i>	
Section B	Water Treatment . . . . .	101
	<i>Glenda M. Payne</i>	
Section C	The Hemodialysis Treatment . . . . .	114
	<i>Joan E. Speranza-Reid</i>	
Section D	Fluid Removal: Obtaining the Estimated Dry Weight During Hemodialysis . . . . .	122
	<i>Judy Kauffman</i>	
Section E	Complications of Hemodialysis: Prevention and Management . . . . .	136
	<i>Joan E. Speranza-Reid</i>	
Section F	Dialyzer Reprocessing . . . . .	155
	<i>Darlene Jalbert</i>	

<b>Chapter 3 Vascular Access for Hemodialysis</b> .....	<b>167</b>
<i>Editor: Kim Deaver</i>	
<i>Authors: Kim Deaver, Caroline S. Counts</i>	
Section A Preparing for a Vascular Access for Hemodialysis – The Process and the Education .....	172
Section B The Arteriovenous Fistula .....	176
Section C The Arteriovenous Graft .....	197
Section D Central Venous Catheters .....	206
Section E The Vascular Access Center .....	215
Section F Monitoring, Surveillance, and Diagnostic Testing – Detection of Access Dysfunction .....	216
Section G CMS ESRD Interpretive Guidelines Pertaining to the Vascular Access.....	218
<b>Chapter 4 Peritoneal Dialysis</b> .....	<b>227</b>
<i>Editor: Lucy B. Todd</i>	
Historical Perspectives .....	229
<i>Leonor P. Ponferrada</i>	
Section A Peritoneal Dialysis Access .....	231
<i>Kim Lambertson</i>	
Section B Peritoneal Dialysis Therapy .....	240
<i>Cheryl L. Groenhoff, Lisa Ales, Lucy B. Todd</i>	
Section C Peritoneal Dialysis Complications .....	267
<i>Kim Lambertson</i>	
<b>Chapter 5 Home Dialysis</b> .....	<b>279</b>
<i>Editor: Karen E. Schardin</i>	
Section A Overview of Home Dialysis .....	281
<i>Geraldine F. Morrison</i>	
Section B Home Hemodialysis .....	287
<i>Karen E. Schardin, Susan C. Vogel</i>	
Section C Home Peritoneal Dialysis .....	299
<i>Maria Luongo</i>	
<b>Self-Assessment Questions</b> .....	<b>311</b>
<b>Index – Module 3</b> .....	<b>316</b>

## Module 4 Acute Kidney Injury

*Module Editor: Helen F. Williams*

<b>Chapter 1 Program Management in the Acute Care Setting</b> .....	<b>1</b>
<i>Mary Perrecone</i>	
<b>Chapter 2 Acute Kidney Injury</b> .....	<b>19</b>
<i>Susan Fallone, Ann Beemer Cotton</i>	
<b>Chapter 3 Hemodialysis in the Acute Care Setting</b> .....	<b>55</b>
<i>Billie Axley</i>	
<b>Chapter 4 Water Treatment in the Acute Care Setting</b> .....	<b>107</b>
<i>Glenda M. Payne</i>	
<b>Chapter 5 Peritoneal Dialysis in the Acute Care Setting</b> .....	<b>119</b>
<i>Linda L. Myers</i>	

<b>Chapter 6 The Patient with a Ventricular Assist Device</b> .....	<b>143</b>
<i>Mary Alice Norton</i>	
<b>Chapter 7 Continuous Renal Replacement Therapies</b> .....	<b>161</b>
<i>Helen F. Williams</i>	
<b>Chapter 8 Therapeutic Apheresis</b> .....	<b>211</b>
<i>Regina Rohe</i>	
<b>Self-Assessment Questions</b> .....	<b>235</b>
<b>Index – Module 4</b> .....	<b>240</b>

## **Module 5 Kidney Disease in Patient Populations Across the Life Span**

---

<b>Chapter 1 Care of the Neonate to Adolescent with Kidney Disease</b> .....	<b>1</b>
<i>Editor: Nancy McAfee</i>	
<i>Authors: Nancy McAfee, Brandy Begin, Anne Diroll, Michele Mills, Theresa Mottes, Cindy Richards, Deidra Schmidt, Kirsten L. Thompson</i>	
Section A Overview of Pediatric Patients with CKD .....	3
Section B Chronic Kidney Disease in Children .....	10
Section C Complications of Kidney Disease in Children .....	26
Section D Acute Kidney Injury .....	33
Section E Kidney Replacement Therapies .....	35
Section F Nutrition and Growth .....	50
Section G Pediatric Pharmacology .....	58
<b>Chapter 2 Care of the Older Adult with Kidney Disease</b> .....	<b>67</b>
<i>Editor and Author: Rowena Elliott</i>	
Section A Review of the Aging Process .....	69
Section B Kidney Disease in the Older Adult .....	76
<b>Self-Assessment Questions</b> .....	<b>89</b>
<b>Index – Module 5</b> .....	<b>90</b>

## **Module 6 The APRN’s Approaches to Care in Nephrology**

---

*Module Editors: Kim Alleman, Katherine Houle*

<b>Chapter 1 Professional Issues for the APRN in Nephrology</b> .....	<b>1</b>
Section A Professional Issues in Advanced Practice Nursing .....	3
<i>Mary Schira</i>	
Section B End-of-Life and Palliative Care .....	7
<i>Deborah H. Brooks</i>	
<b>Chapter 2 Overview of CKD for the APRN</b> .....	<b>19</b>
Section A APRN Role in CKD, Stages 1 through 3 .....	21
<i>Sally F. Campoy</i>	
Section B APRN Role in CKD, Stages 4 to 5, Not on Dialysis .....	32
<i>Andrea Easom</i>	

<b>Chapter 3</b>	<b>Overview of Treatment Options for CKD for the APRN</b> .....	<b>53</b>
Section A	Role of the APRN in the Care of the Kidney Transplant Recipient .....	55
	<i>Colleen M. Brown</i>	
Section B	Approaches to Care by the APRN in Hemodialysis .....	68
	<i>Carol L. Kinzner</i>	
Section C	Approaches to Care by the APRN in Hemodialysis Access .....	74
	<i>Donna Bednarski</i>	
Section D	Approaches to Care by the APRN in Peritoneal Dialysis .....	86
	<i>Mary M. Zorzanello</i>	
Section E	Approaches to Care by the APRN in Home Dialysis .....	101
	<i>Elaine Go, Katherine Houle</i>	
<b>Chapter 4</b>	<b>Overview of Acute Care for the APRN</b> .....	<b>111</b>
	<i>Timothy Ray</i>	
<b>Chapter 5</b>	<b>Overview of Pediatric Nephrology for the APRN</b> .....	<b>153</b>
	<i>Helen Currier, Jessica J. Geer</i>	
Section A.	Prenatal and Postnatal Anatomic Development of the Kidneys.....	155
Section B.	Prenatal and Postnatal Developmental Physiology and Pathophysiology Secondary to Abnormal Development of the Kidneys.....	156
Section C.	Assessment of Renal Structure and Function in Children.....	160
Section D.	Pediatric End-Stage Renal Disease: Current Statistics from the 2014 USRDS Annual Report .....	162
Section E.	Frequent Causes of Kidney Disease in Children.....	162
Section F.	Hypertension in Children .....	171
Section G.	Treatment of Secondary Issues Related to Chronic Kidney Disease .....	177
Section H.	Kidney Replacement Therapies in Children .....	181
Section I.	Acute Kidney Injury (AKI) in Children .....	189
Section J.	Nutrition and Growth in Children with Kidney Disorders.....	190
Section K.	Immunization Guidelines for Pediatric Patients with Kidney Disease .....	194
Section L.	Emergency Care .....	195
Section M.	Atraumatic Care .....	195
Section N.	Special Considerations for Pediatric Programs .....	199
	<b>Self-Assessment Questions</b> .....	<b>201</b>
	<b>Index – Module 6</b> .....	<b>206</b>